

Date Distributed: July 24, 2017



**THE
NATIONAL
BOARD**
OF BOILER AND
PRESSURE VESSEL
INSPECTORS

NATIONAL BOARD SUBGROUP HISTORICAL BOILERS

MINUTES

Meeting of July 17th, 2017
Cleveland, Ohio

*These minutes are subject to approval and are for the committee use only.
They are not to be duplicated or quoted for other than committee use.*

The National Board of Boiler & Pressure Vessel Inspectors
1055 Crupper Avenue
Columbus, Ohio 43229-1183
Phone: (614)888-8320
FAX: (614)847-1828

1. Call to Order

The meeting was called to order at 8:45 a.m. on July 17, 2017 by Mr. Joel Amato.

2. Introduction of Members and Visitors

The attendees are identified on the attendance sign in sheet (**Attachment Page 1**). With the attached attendance listing, a quorum was established.

3. Announcements

- The National Board invites all committee members and visitors to a reception at the Pavilion on Wednesday.
- Lunch will be provided Tuesday through Thursday, breakfast will be provided on Thursday before the Main Committee Meeting.
- Additional announcements were made by the Secretary, Jodi Metzmaier

4. Adoption of the Agenda

Items NB17-0601, NB17-0602 and NB17-0603 were added to the agenda, along with the general discussion from Stanley Steamer owners & operators. A motion was made to adopt the agenda as revised, the motion was unanimously approved.

5. Approval of the Minutes of January 9th, 2017 Meeting

The minutes from the January 2017 meeting were approved unanimously.

6. Review of Rosters

a. Membership Nominations

The Subgroup unanimously voted for Jon Wolf to become a member of the SG Historical.

b. Membership Reappointments

There are no members eligible for reappointment to SG Historical.

7. NBIC Business

Item Number: NB13-0903	NBIC Location: Part 2, S2.14	Attachment Page 2
General Description: Add safety requirements for use of liquid or gaseous fuels to fire a historical boiler		
Subgroup: Historical		
Task Group: D. Rupert (PM), T. Dillon, J. Larson, R. Bryce		
<u>July 2017 Meeting Action:</u>		
After the new wording was sent to Letter Ballot to SG Historical from the January 2017 meeting, it was approved; however, there were comments that needed to be addressed. A few changes were made based on the comments, and a motion was made to approve the document as revised. The motion was unanimously approved.		

Item Number: NB15-1602	NBIC Location: Part 3, S2.7.1	No Attachment
<p>General Description: Revise material list for historical boiler reports to include bolts, studs, nuts and formed pressure parts</p> <p>Subgroup: Historical Task Group: T. Dillon (PM), M. Wahl, G. Galanes</p> <p>July 2017 Meeting Action: Mr. Dillon has given a progress Report. He noted that he has received new documents that need to be reviewed. There is no other progress to report at this time.</p>		

Item Number: NB16-0502	NBIC Location: Part 2	No Attachment
<p>General Description: Gage glass and water level over historical boiler crown sheets</p> <p>Subgroup: Historical Task Group: None Assigned.</p> <p>July 2017 Meeting Action: Mr. D. Rupert presented a few documents with examples for discussion. After much discussion from the SG, the task group now has suggestions and guidance and will put together new language.</p> <p>Task Group Assigned: D. Rupert (PM), T. Dillon, R. Underwood & R. Troutt</p>		

Item Number: NB16-0503	NBIC Location: Part 3, S2.13.13.4	No Attachment
<p>General Description: Add types of rivet heads</p> <p>Subgroup: Historical Task Group: None Assigned.</p> <p>July 2017 Meeting Action: Mr. D. Rose has given a progress report stating the drawing the task group is working on is not finished.</p> <p>Task Group assigned: D. Rose (PM), R. Bryce</p>		

Item Number: 17-136	NBIC Location: Part 2, S2	Attachment Page 3
<p>General Description: Update tables in Part 2, S2 with correct values</p> <p>Subgroup: Historical Task Group: Joel Amato</p> <p>July 2017 Meeting Action: Mr. J. Amato has presented changes/updates to the Chart in S2. After review of the chart with the SG, a motion was made to approve the changes as presented. The motion was unanimously approved.</p>		

Item Number: 17-138	NBIC Location: Part 3, S2	Attachment Pages 4-5
<p>General Description: Add new paragraph on pressure testing to Part 3, S2</p> <p>Subgroup: Historical Task Group: R. Underwood</p> <p>July 2017 Meeting Action: Mr. R. Underwood presented a document showing new wording/changed to Part 3, S2.1. After review of the document with the SG, a motion was made to accept the new wording/changes as presented. The motion was unanimously approved.</p>		

Item Number: NB17-0601	NBIC Location: Part 3, S2.13	No Attachment
<p>General Description: Single staybolt with threaded & welded connections</p> <p>Subgroup: Historical Task Group: M. Wahl (PM), G. Galones, R. Underwood</p> <p>July 2017 Meeting Action: After much discussion, the SG has decided no action needs to be taken based on the original Code of Construction, referencing 2017 ASME, Section I, figure A8(c). A motion was made to close this item with no action. The motion was passed unanimously.</p>		

Item Number: NB17-0602	NBIC Location: Part 3	No Attachment
<p>General Description: Scope of repair/new boiler with an R stamp.</p> <p>Subgroup: Historical Task Group: R. Underwood (PM), M. Wahl</p> <p>July 2017 Meeting Action: Mr. R. Underwood presented a document to the SG, and after much discussion it was decided that more work would need to be done with the task group to the proposed language.</p> <p>Add J. Amato, D. Rose and M. Jordan to the task group.</p>		

Item Number: NB17-0603	NBIC Location: Part 2, S2.10.2.1	Attachment Page 6
<p>General Description: Revises wording adding "Common."</p> <p>Subgroup: Historical Task Group: D. Rose (PM), M. Wahl</p> <p>July 2017 Meeting Action: Mr. D. Rose presented the change to Part 2, S2.10.2.1. A motion was made to approve the change as presented. The motion was unanimously approved.</p>		

8. General Discussion

A presentation was given by Stanley Steamer owners and operators regarding the construction of the Stanley boiler and its characteristics.

9. Future Meetings

- January 8th-11th, 2018 – New Orleans, Louisiana
- July 16th-19th, 2018 – Columbus, Ohio

10. Adjournment

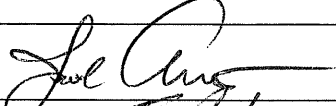
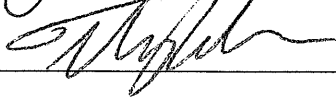
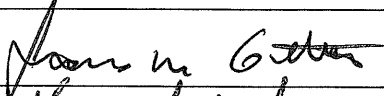
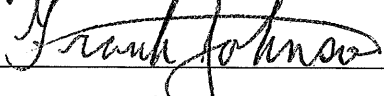

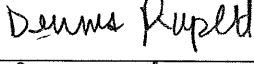
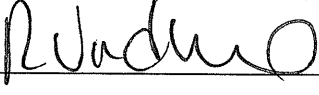
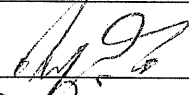
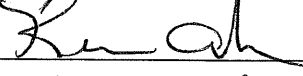
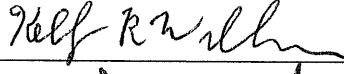
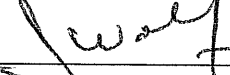

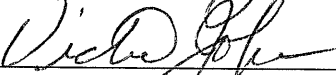
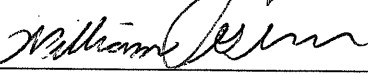
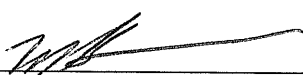

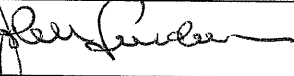

A motion was made and unanimously approved to adjourn the meeting at 12:12 p.m.

Respectfully submitted,

A handwritten signature in black ink that reads "Jodi Metzmaier". The signature is written in a cursive, flowing style.

Jodi Metzmaier
SG Historical Secretary

SG Historical Attendance Sheet - 7/17/17

Name	Company	Phone Number	Email	Signature	Attend Rec.?	Bringing Guest?
Joel Amato	State of Minnesota	(651) 284-5137	joel.amato@state.mn.us		X	
Tom Dillon	MSEA Deltak	612-308-9560 (763) 425-0733	dillon110hp@comcast.com tdillon@deltak.com			
Bob Ferrell	National Board	(614) 888-8320	rferrell@nationalboard.org			
Jim Getter	Worthington Industries	(614) 840-3087	jim.getter@worthingtonindustries.com		X	
Frank Johnson	PBF Energy	419-386-8450 (419) 698-6614	frank.johnson@pbfenergy.com		X	
David Rose	T&T Inspections	(780) 217-8175	dr3747@telus.net			
Dennis Rupert	Consultant	(517) 437-4565	rupertcull@comcast.net		X	
Robert Underwood	Hartford Steam Boiler	(618) 593-6231	robert_underwood@hsb.com		X	
Mike Wahl	Wisconsin Historical Steam Engine Association	(920) 972-7308	mikew@midstal.com			
Rob Trout	Texas	512 634 2727	Rob.trout@TDLR.Texas.gov		X	
Kevin Anderson		605-281-5663	kandvsrn@nrc.net		X	
Kelly Williams	Armstrong	202-615-0616	Kelly@StanleyRegister.net			
Jon Wolf	Zurich	920-253-8781	jon.wolf@zurichna.com		X	
MARK JORDAN	KENTUCKY	502 671 9220	MARK.JORDAN@KY.GOV			
Vic Johnson	Ohio	419 261 0967				
BILL GLOVER	STATE OF OHIO	419-512-1904	WILLIAM.GLOVER@COM.ohio.gov			
Math Sansone	State of NY	585 303 1316	mathew.sansone@labor.ny.gov		X	
DENNIS RUPERT	MICHIGAN STEAM ASS.	517-398-0152	rupertcull@comcast.net		X	
John Linderman	Stanley Museum	860 549-5290 x1004	jlinlinderman2@cox.net			Guest
Jodi Metzmaier	NB	614-888-8350	jmetzmai@nationalboard.org		X	

Action Item Request

Code Revision or Addition: NB13-0903 to Part 2, S2.14

The requestor, Mr Don Cook, Chief Inspector, State of California has been seeing occasions in his state where historical boilers are being fired with liquid or gaseous fuels and is asking the Committee to provide some cautionary guidance in NBIC to address these important safety issues related to that activity.

PROPOSE:

New paragraph, Part 2, Supplement S2.14.16:

FIRING OF HISTORICAL BOILERS WITH LIQUID OR GASEOUS FUELS.

Hand firing of historical boilers with liquid or gaseous fuels poses significant additional safety concerns beyond those encountered when firing with solid fuels for which these boilers were originally designed, such as coal, straw or wood. The cautionary notes listed below are provided as examples to remind the owner or user that additional safety concerns do exist when firing historical boilers with these alternate fuels. These notes are not meant to be all-inclusive so each boilers fuel system should be designed appropriately.

- a) JURISDICTIONAL ACCEPTANCE: The owner or user should check with the Jurisdiction as applicable to determine if this alternative firing method is allowed.
- b) OWNER OR USER KNOWLEDGE: The owner or user shall have an extensive knowledge of the fuel used, fuel transfer system, on board fuel storage, burner, firing controls, emergency shut off devices and procedures.
- c) PURGING: To prevent a firebox explosion, it is essential to ensure that the furnace is purged of combustible gasses prior to applying the fuel ignition source to prevent flame-outs.
- d) FLAME IMPINGEMENT: Direct flame impingement of the metal surfaces within the furnace can damage the boiler. Installation of refractory or fire brick in the firebox is a common practice to prevent this potential damage.
- e) LOW WATER: The owner or user ~~must~~ shall have a plan and method to immediately shut off the fuel supply to the burner when a boiler low water condition occurs.
- f) FUEL CONTAINMENT: The fuel storage system ~~must~~ shall be suitably designed with the appropriate shut off devices for the specific fuel product. The mounting method and proximity of the fuel storage container to the furnace ~~must~~ shall be considered to prevent the fuel from accidental ignition.
- g) FUEL SYSTEM: The fuel delivery system from fuel source to the burner shall be suitably designed for the specific fuel product including appropriate emergency shut off devices. The routing of the fuel delivery system should be a consideration as well.
- h) FUEL AIR MIXTURE: The burner utilized shall be designed to operate within the confines of the boiler furnace and provide the proper fuel/air mixture.
- i) SAFETY VALVE: The boilers minimum relieving capacity shall be computed for the type of fuel used.
- j) COMPRESSED NATURAL GAS (CNG) vs LIQUID PETROLEUM GAS (LPG): CNG is lighter than air and LPG is heavier than air. The owner or user should understand the properties of the fuels to ensure the gas will not accumulate in the boiler (see Purging above).

Item 17-136 – Amato - 170717

Actual Diameter of Corroded Iron Staybolt, in.

Staybolt Spacing, in.	0.35	0.375	0.4	0.425	0.45	0.475	0.5	0.525	0.55	0.575	0.6	0.625	0.65	0.675	0.7	0.725	0.75	0.775	0.8	0.825	0.85	0.875	0.9
3.5	93	105	119	133	149	165	182	199	218	237	257	278	300	323	346	370	396	422	448	476	504	533	
3.625	75	86	98	111	124	139	153	169	186	203	221	240	259	280	301	323	345	369	393	418	444	470	497
3.75	70	81	92	104	116	129	143	158	174	190	207	224	242	261	281	302	323	345	367	390	415	439	465
3.875	66	76	86	97	109	121	134	148	163	178	193	210	227	245	263	282	302	323	344	366	388	411	435
4	62	71	81	91	102	114	126	139	153	167	182	197	213	230	247	265	284	303	323	343	364	386	408
4.125	58	67	76	86	96	107	119	131	143	157	171	185	200	216	232	249	267	285	303	323	343	363	384
4.25	55	63	71	81	90	101	112	123	135	148	161	174	189	204	219	235	251	268	286	304	323	342	362
4.375	52	59	67	76	85	95	105	116	128	139	152	165	178	192	207	222	237	253	270	287	305	323	341
4.5	49	56	64	72	81	90	100	110	121	132	143	156	168	182	195	209	224	239	255	271	288	305	323
4.625	46	53	60	68	76	85	94	104	114	125	136	147	159	172	185	198	212	227	241	257	273	289	306
4.75	32	37	42	47	53	59	65	72	79	86	94	102	110	119	128	137	147	157	167	178	189	200	211
4.875	30	35	40	45	50	56	62	68	75	82	90	97	105	113	121	130	139	149	159	169	179	190	201
5	29	33	38	43	48	53	59	65	71	78	85	92	100	107	115	124	133	142	151	160	170	180	191
5.125	27	32	36	41	45	51	56	62	68	74	81	88	95	102	110	118	126	135	144	153	162	172	182
5.25	26	30	34	39	43	48	53	59	65	71	77	83	90	97	105	112	120	128	137	145	154	164	173
5.375	25	29	33	37	41	46	51	56	62	67	73	79	85	91	100	107	115	122	130	139	147	156	165
5.5	24	27	31	35	39	44	49	54	60	65	71	77	83	89	95	102	110	117	125	133	141	149	158
5.625	23	26	30	34	38	43	48	53	59	64	70	76	82	88	94	101	109	117	125	133	141	149	158
5.75	22	25	29	32	36	41	45	50	55	61	66	72	78	84	90	97	105	112	119	127	135	143	151
5.875	21	24	27	31	35	39	43	48	53	58	64	70	76	82	88	94	100	107	114	121	129	136	144
6	20	23	26	30	34	38	42	47	52	57	63	69	75	81	87	93	100	107	114	121	129	136	144
6.125	19	22	25	28	32	36	40	45	50	55	60	66	72	78	84	90	96	103	109	116	123	131	138
6.25	18	21	23	27	30	34	38	43	48	53	58	64	70	76	82	88	94	100	107	113	120	127	
6.375	18	20	23	26	29	33	37	41	46	51	56	62	68	74	80	86	92	98	105	111	118	125	133
6.5	17	20	22	25	28	32	35	39	43	48	53	58	64	70	76	82	87	93	99	105	111	117	
6.625	16	19	21	24	27	30	34	38	42	47	52	57	63	69	75	81	86	91	97	103	109	115	122
6.75	16	18	21	23	26	29	32	35	39	43	48	53	58	64	70	75	81	86	91	97	103	109	115
6.875	15	18	20	23	26	29	32	35	39	43	48	53	58	64	70	75	80	85	90	95	101	107	113
7	15	17	19	22	24	27	30	33	36	40	43	47	51	55	59	63	68	72	77	82	87	92	97

This section of the table has incorrect data. From 3.5" to 4.625" staybolt spacing and diameters of .35 to .9. The correct data for this section of the table is listed on the attached Word document.

$$P = \frac{\pi \left(\frac{d}{2} \right)^2 \cdot S}{p^2}$$

S = 7,500 psi

P = MAWP psi

p = staybolt spacing, in.

d = Minimum diameter of corroded staybolt, in.

Table S2.10.4.La [US Customary Units]
Maximum Allowable Working Pressure on the Load Carrying Capacity of a Single Corroded Staybolt

Add the word "Iron" between corroded and staybolt

Request for NBIC Part 3, S2.11 Revision

Robert V. Underwood

The Hartford Steam Boiler Inspection and Insurance Company

Robert_Underwood@hsb.com

618-593-6231

NB17-0138

Purpose	Revise S2.11 of NBIC Part 3, Supplement 2 to address NDE of alterations as well as examination and testing requirements of repairs and alterations to historical boilers.
Scope:	<p>The title of S2.11 will be revised to Nondestructive Examination “and Testing” and S2.11 will be broken into sub-paragraphs (a) and (b).</p> <p>Existing paragraph S2.11 will be in S2.11(a) and be revised to now address NDE for <u>alterations</u> and also refer back to paragraph 4.2 of NBIC Part 3 which has detailed NDE requirements for all repairs and alterations.</p> <p>S2.11(b) is a new paragraph that will address the requirement of an examination or test of all completed repairs and alterations. It will also refer back to paragraph 4.4 of NBIC Part 3 which has detailed exam and test requirements for all repairs and alterations.</p>
Background	<p>An “R” Certificate Holder called to question whether a pressure test was required upon completion of a welded repair to a riveted boiler. S2.8 requires the Inspector to verify any NDE or witness a pressure test of the completed repair. S2.13(d) states that a single hydrostatic test be performed after seal welding a tube. However, there is no mandatory requirement that an examination or pressure test be performed after completing a repair or alteration.</p> <p>As written, one could argue that seal welding of tubes is the only repair that would require a pressure test or examination.</p>
Proposed Revision	See following page

EXISTING WORDING IN S2.11 OF NBIC PART 3, Section 6, Supplement 2

S2.11 NONDESTRUCTIVE EXAMINATION

The Inspector may require nondestructive examination (RT, PT, MT, UT, and VT) as necessary to ensure satisfactory welded repairs have been accomplished.

PROPOSED REVISION OF S2.11 OF NBIC PART 3, SECTION 6, SUPPLEMENT 2

S2.11 NONDESTRUCTIVE EXAMINATION AND TESTING

- a) The Inspector may require nondestructive examination (RT, PT, MT, UT, and VT) as necessary to ensure satisfactory welded repairs **and alterations** have been accomplished. (See NBIC Part 3, 4.2)
- b) **The integrity of repairs and alterations shall be verified by examination or test. (See NBIC Part 3, 4.4)**

NB17-0603

Part 2, S2.10.2.1 RIVET HEAD TYPES

| Common Finished rivet heads are shown in NBIC Part 3, Figure S2.13.13.4. Note that a riveted seam may have more than one type of rivet to, for example, provide necessary clearance during operation, or for provision for equipment assembly and maintenance.